



CHEMISTRY

BOOKS - NCERT CHEMISTRY (HINGLISH)

ENVIRONMENTAL CHEMISTRY

Multiple Choice Question

1. Which of the following gases is not green house gas ?

A. CO

B. O_3

C. CH_4

D. H_2O vapour

Answer: A



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2. Photochemical smog occurs in warm, dry and sunny climate, One of the following is not

amongst the components of photochemical smog, identify it.

A. NO_2

B. O_3

C. SO_2

D. Unsaturated hydrocarbon

Answer: C



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3. Which of the following statement is not true about classical smog?

A. Its main components are produced by the action of sunlight on emission of automobiles and factories

B. Produced in cold and humid climate

C. It contains compounds of reducing nature

D. It contains smoke, fog and sulphur dioxide.

Answer: A



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4. Biochemical Oxygen Demand, (BOD) is a measure of organic material present in water. BOD value less than 5ppm indicates a water sample to be

A. rich in dissolved oxygen

B. poor in dissolved oxygen

C. highly polluted

D. not suitable for aquatic life

Answer: A



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5. Which of the following statement(s) is/are wrong ?

A. Ozone is not responsible for green

B. Ozone can oxidise sulphur dioxide present in the atmosphere to sulphur trioxide

C. Ozone hole is thinning ozone layer present in stratosphere

D. Ozone is produced in upper stratosphere by the action of UV rays on oxygen

Answer: A



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6. Sewage containing organic waste should not be disposed in water bodies because it causes major water pollution. Fishes in such a polluted water die because of

A. large number of moxquitos

B. increase in the amount of dissolved oxygen

C. decrease in the amount of dissolved oxygen in water

D. clogging of gills by mud

Answer: C



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7. Which of the following statements about photochemical smog is wrong ?

A. It has concentration of oxidising agents

B. It has low concentration of oxidising agent

C. It can be controlled by controlling the

release NO_2 , hydrocarbon, ozone etc.

D. Plantation of some plants like pinus

helps in controlling photochemical smog

Answer: B



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8. The gaseous envelope around the earth is known as atmosphere. The lowest layer of this is extended upto 10 km from sea level , this layer is

A. stratosphere

B. troposphere

C. mesosphere

D. hydrosphere

Answer: B



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9. Dinitrogen and dioxygen are main constituents of air but these do not react with each other to form oxide of nitrogen because

A. the reaction is endothermic and requires very high temperature

B. the reaction can be initiated only in presence of a catalyst

C. oxides of nitrogen are unstable

D. N_2 and O_2 are unreactive

Answer: A



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10. The pollutants which come directly in the air from sources are called primary pollutants. Primary pollutants are sometimes converted into secondary pollutants. Which of the following belongs to secondary air pollutants ?

A. CO

B. Hydrocarbon

C. Peroxyacetyl nitrate

D. NO

Answer: C



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11. Which of the following statement is correct ?

A. Ozone hole is a hole formed in stratosphere from which ozone oozes out

B. Ozone hole is a hole formed in troposphere from which ozone oozes out

C. Ozone hole is thinning of ozone layer of stratosphere at some places

D. Ozone hole means vanishing of ozone layer around the earth completely

Answer: C



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12. Which of the following practices will not come under green chemistry?

A. If possible, making use of soap made of vegetable oils instead of using synthetic detergents.

B. Using H_2O_2 for bleaching purpose instead of using chlorine based bleaching agents

C. Using bicycle for travelling small distance instead of using petrol/diesel based vehicles.

D. Using plastic can for neatly storing substances

Answer: D



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13. Which of the following conditions shows the polluted environment ?

A. pH of rain water 5.6

B. Amount of carbon dioxide in the atmosphere is 0.03 %

C. Biochemical oxygen demand 10ppm

D. Eutrophication

Answer: C::D



14. Phosphate containing fertilisers cause water pollution. Addition of such compounds in water bodies causes. . . .

A. enhanced growth of algae

B. decrease in amount of dissolved oxygen
in water

C. deposition of calcium phosphate

D. increase in fish population

Answer: A::B



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15. The acids present in acid rain are _____.

a) Peroxyacetyl nitrate b) H_2CO_3 c) HNO_3 d)

H_2SO_4

A. Peroxyacetyl nitrate

B. H_2CO_3

C. HNO_3

D. H_2SO_4

Answer: B::C::D



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16. The consequences of global warming may be a)increase in average temperature of the earth b)melting of Himalayan Glaciers. c)increased biochemical oxygen demand. d)increased biochemical oxygen demand.

A. increase in average temperature of the earth

B. melting of Himalayan Glaciers

C. increased biochemical oxygen demand

D. Eutrophication

Answer: A::B



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Short Answer Type

1. Which of the following pairs of gases is mainly responsible for green house effect?



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2. Name the two acids that are present in acid rain.



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3. Ozone is a toxic gas and is a strong oxidising agent even though its presence in the stratosphere is very important. Explain what

would happen if ozone from this region is completely removed ?



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4. Dissolved oxygen in water is very important for aquatic life. What processes are responsible for the reduction of dissolved oxygen in water ?



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5. On the basis of chemical reactions involved, explain how do chlorofluorocarbons cause thinning of ozone layer in stratosphere ?



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6. What could be the harmful effects of improper management of industrial and domestic solid waste in a city ?



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7. During an educational trip, a student of botany saw a beautiful lake in a village. She collected many plants from that area. She notices that villagers were washings clothes around the lake and at some places waste material from houses was destroying its beauty.

After few years, shw visited the same lake again. She was suprised to find that the lake was covered with algae, stinking smell was coming out and its water had become

unusable. Can you explain the reason for this condition of the lake ?



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8. What are biodegradable and non-biodegradable pollutants ?



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9. Dissolved oxygen in water is very important for aquatic life. What processes are responsible

for the reduction of dissolved oxygen in water

?



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10. BOD of waste water is estimated by measuring the amount of



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11. Fishes die in water bodies polluted by swage due to :



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12. A factory was started near a village. Suddenly villagers started feeling the presence of irritating vapour in the village and cases of headache, chest pain, cough, dryness of throat and breathing problems increased. Villagers blamed the emissions from the chimney of the factory for such problems. Explain what could have happened. Give chemical reactions for the support of your explanation.



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13. Oxidation of sulphur dioxide into sulphur trioxide in the absence of a catalyst is a slow process but this oxidation occurs easily in the atmosphere. Explain how does this happen? Give chemical reactions for the conversion of SO_2 into SO_3 .



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14. From where does ozone come in the photochemical smog ?



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15. What is ozone and how does it affect any ecosystem?



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16. Ozone is a gas heavier than air. Why does the ozone layer not settle down near the earth ?



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17. Some time ago formation of polar stratospheric clouds reported over Antarctica. Why were these formed ? What happens when such clouds break up by warmth of sunlight ?



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18. A person was using water supplied by Municipality. Due to shortage of water the started underground water. He felt laxative effect. What could be the cause ?



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Match The Column

1. Match the terms given in Column I with the compound given in Column II.

Column I	Column II
A. Acid rain	1. $\text{CHCl}_2\text{-CHF}_2$
B. Photochemical smog	2. CO
C. Combination with haemoglobin	3. CO_2
D. Depletion of ozone layer	4. SO_2
	5. Unsaturated hydrocarbons



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2. Match the pollution(s) in column I with the effect(s) in column II.

Column I	Column II
A. Oxides of sulphur	1. Global warming
B. Nitrogen dioxide	2. Damage to kidney
C. Carbon dioxide	3. 'Blue baby' syndrome
D. Nitrate in drinking water	4. Respiratory diseases
E. Lead	5. Red haze in traffic and congested areas



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3. Match the activity given in Column I with the type of pollution created by it given in Column

II.

Column I (Activity)	Column II (Effect)
A. Releasing gases to the atmosphere after burning waste material containing sulphur	1. Water pollution
B. Using carbamates as pesticides	2. Photochemical smog, damage to plant life, corrosion to building material, induce breathing problems, water pollution
C. Using synthetic detergents for washing clothes	3. Damaging ozone layer
D. Releasing gases produced by automobiles and factories in the atmosphere	4. May cause nerve diseases in human
E. Using chlorofluorocarbon compounds for cleaning computer parts	5. Classical smog, acid rain, water pollution, induce breathing problems, damage to buildings, corrosion of metals



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4. Match the pollutants given in Column I with their effects given in Column II.

Column I	Column II
A. Phosphate fertilisers in water	1. BOD level of water increases
B. Methane in air	2. Acid rain
C. Synthetic detergents in water	3. Global warming
D. Nitrogen oxides in air	4. Eutrophication



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Assertion And Reason

1. Assertion (A) Green house effect was observed in houses used to grow plants and these are made of green glass.

Reason (R) Green house name has been given because glass houses are made of green glass.

- A. Both A and R are correct and R is the correct explanation of A
- B. Both A and R are correct and R is not the correct explanation of A
- C. Both A and R are not correct
- D. A is not correct but R is correct

Answer: C



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2. Assertion (A) : The pH of acid rain is less than 5.6.

Reason (R) : Carbon dioxide present in the atmosphere dissolves in rain water and forms carbonic acid. a)Both A and R are correct and R is the correct explanation of A. b).Both A and R are correct but R is not the correct explanation of A. c)Both A and R are not correct. d)A is not correct but R is correct.

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not the correct explanation of A

C. Both A and R are not correct

D. A is not correct but R is correct

Answer: B



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3. Assertion: Photochemical smog is oxidising in nature.

Reason: Photochemical smog contains NO_2

and O_3 which are formed during the sequence of reactions.

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not the correct explanation of A

C. Both A and R are not correct

D. A is not correct but R is correct

Answer: A



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4. Assertion (A) : Carbon dioxide is one of the important greenhouse gases.

Reason (R) : It is largely produced by respiratory function of animals and plants. a)Both A and R are correct and R is the correct explanation of A. b).Both A and R are correct but R is not the correct explanation of A. c)Both A and R are not correct. d)A is not correct but R is correct.

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not the correct explanation of A

C. Both A and R are not correct

D. A is not correct but R is correct

Answer: B



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5. Assertion (A) : Ozone is destroyed by solar radiation in upper stratosphere.

Reason (R) : Thinning of the ozone layer allows

excessive UV radiations to reach the surface of earth. a)Both A and R are correct and R is the correct explanation of A. b).Both A and R are correct but R is not the correct explanation of A. c)Both A and R are not correct. d)A is not correct but R is correct.

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not the correct explanation of A

C. Both A and R are not correct

D. A is not correct but R is correct

Answer: D



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6. Assertion (A) : Excessive use of chlorinated synthetic pesticides causes soil and water pollution.

Reason (R) : Such pesticides are non-biodegradable. Both A and R are correct and R is the correct explanation of A. a)Both A and R

are correct and R is the correct explanation of A. b).Both A and R are correct but R is not the correct explanation of A. c)Both A and R are not correct. d)A is not correct but R is correct.

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not the correct explanation of A

C. Both A and R are not correct

D. A is not correct but R is correct

Answer: A



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7. Assertion: If *BOD* level of water in a reservoir is less than 5 ppm it is highly pollution.

Reason: High biological oxygen demand means low activity of vacteria in water.

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not the correct explanation of A

C. Both A and R are not correct

D. A is not correct but R is correct

Answer: C



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Long Answer Type

1. How can you apply green chemistry for the following ?

(a) To control photochemical smog.

(b) To avoid use of halogenated solvents in drycleaning and that of chlorine in bleaching.

(c) to reduce use of synthetic detergents.

(d) To reduce the consumption of petrol and diesel.



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2. Green plants use carbon dioxide for photosynthesis and return oxygen to the atmosphere, even then carbon dioxide is considered to be responsible for green house effect. Explain why?



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3. Explain the "green house effect" of earth's atmosphere.



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4. A farmer was using pesticides on his farm. He used the produce of his farm as food for rearing fishes, He was told that fishes were not fit for human consumption because large amount of pesticides had accumulated in the tissues of fishes. Explain how did this happen ?



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5. For dry cleaning, in the place of tetrachloroethane, liquified carbon dioxide

with suitable detergent is an alternative solvent. What type of harm of the environment will be prevented by stopping use of tetrachloroethane ? Will use of liquified carbon dioxide with detergent be completely safe from the point of the view of pollution?

Explain



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